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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,218

12/01/2003

Hayato Higuchi

0020-5205P

9829

2292 7590 01/05/2007
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EXAMINER

CREPEAU, JONATHAN

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
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3 MONTHS

01/05/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/05/2007.

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Office Action Summary

Application No.

10/724,218

Applicant(s)

HIGUCHI ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/1/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is two paragraphs. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 9, 11, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Hanafusa et al (U.S. Patent 6,531,246). The reference teaches a battery having a laminated electrode body and a battery can (1) having a depression attached to a lid (see Fig. 4). The can comprises a flange portion and the lid comprises a circumference portion, which are joined together and sealed. The respective electrode leads (21, 20) are drawn out from the can body through a space formed at a surface part of the joined flange section. The space is formed at an edge surface of the flange section and is best visualized as the area near reference character 7 in Fig. 5. In the area of the drawn-out leads, the flange section is bonded by resin bonding (see col. 8, line 28). Regarding claim 4, an output terminal (16) electrically connected to a lead is located

on the flange section (see Fig. 10). Regarding claim 9, which recites that the can body and/or metal lid are formed by means of shallow drawing, this limitation is given little patentable weight as it does not further limit the structure of the claimed apparatus (MPEP 2113).

Regarding claims 11 and 13, the flange portion comprising the drawn-out leads is substantially wider than the remaining flange portions of the battery (see Fig. 4).

Thus, the instant claims are anticipated.

4. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Furusaki (U.S. Patent 6,673,488). The reference teaches a battery having a laminated electrode body and a battery can (1) having a depression attached to a lid. The can comprises a flange portion and the lid comprises a circumference portion, which are joined together and sealed (see, e.g., Figs. 4 and 11). The respective electrode leads are drawn out from the can body through a space formed at a surface part of the joined flange section. The space is formed at an edge surface of the flange section and is best visualized as the area near reference character 54 in Fig. 9. All portions of the flange section are bonded by resin bonding (see col. 4, line 43). Regarding claims 7 and 8, the body flange portion and the lid circumference portion have extension parts that are folded back towards the battery.

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanafusa et al.

The reference is applied for the reasons stated above. However, the reference does not expressly teach that the flange portions other than that around the drawing space are sealed by welding, as recited in claim 5.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would have been motivated to seal the flanges by a welding process. In a discussion of the prior art in column 2, line 6, the reference teaches that "heat fusion or welding" can be used to seal the prior art battery. Since Hanafusa et al. do not appear to disclose how the remaining flange sections are sealed in the inventive battery, the skilled artisan would find it obvious to use a welding process to perform this sealing function in the inventive battery. Accordingly, the subject matter of claim 5 would be rendered obvious.

Additionally, claim 10 recites that the lid and the can body are formed to have convexes toward the interior of the battery and the amount of deformation of the central projection is 0.05-0.3 mm. This subject matter would also be rendered obvious by Hanafusa et al. At column 8,

line 45, the reference teaches that the battery core 1a is joined electrically by adhesion, welding, or press fitting to the metallic foils 5 and 9. It would be obvious to configure the lid and the can body, which comprise the foils 5 and 9, to be slightly convex in order to enhance the press fitting or joining operation with the electrode body. Accordingly, the subject matter of claim 10 would be rendered obvious to the skilled artisan.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanafusa et al in view of JP 11-185820.

Hanafusa is applied to claim 1 for the reasons stated above. However, the reference does not expressly teach that a safety valve is provided in the can body or lid, as recited in claim 14.

JP '820 teaches a thin-type battery comprising a laminated electrode element and a cleavage valve located in the battery cover (see abstract).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to incorporate a cleavage valve in the cover of the battery of Hanafusa et al. Lithium batteries are known to have a problem wherein gas pressure develops upon a short circuit, and cleavage valves such as that disclosed by JP '820 are a useful way of addressing this problem. Accordingly, the skilled artisan would be motivated to use a cleavage valve in the battery of Hanafusa et al.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanafusa et al as applied to claims 5 and 10 above, and further in view of Amine et al (U.S. Pre-Grant Publication No. 2005/0112461).

Hanafusa does not expressly teach that the joined flange section is proved with a double sealing portion made of an inside resin sealing in addition to the welded seal, as recited in claim 6.

Amine et al. teach a packaging for primary and secondary batteries. The packaging includes foil laminates that are double-sealed at portions thereof (see Fig. 4). Channels are formed between the double seals and contain adsorbents (see [0047]).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to incorporate the double seal structure of Amine et al. into the battery of Hanafusa et al. In [0047], Amine et al. teach that by using this structure, "the shelf-life and useful life of the battery can be extended greatly with only a little added cost." Accordingly, the artisan would be motivated to incorporate the double seal structure of Amine et al. into the battery of Hanafusa et al. In addition, the artisan would be sufficiently skilled to use a combination of welding and heat fusion to perform the double-sealing, as each is individually suggested by Hanafusa as a sealing method. As such, the configuration recited in claim 6 is not considered to distinguish over the references.

Allowable Subject Matter

9. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Claim 12 recites that the electrode body is formed in a cross-sectional shape of an ellipse, where in the winding axis of the electrode body is positioned parallel to the broader flange portion and the winding terminations of the positive and/or negative electrode are located at the side of the broader flange portion. The art of record does not teach or fairly suggest this configuration.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299.

The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J-8

Jonathan Crepeau
Primary Examiner
Art Unit 1745
December 27, 2006